



# UNITED STATES PATENT AND TRADEMARK OFFICE

W  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/806,412	03/30/2001	Hiroaki Sudo	L9289.01125	8690
7590	11/03/2004		EXAMINER	
Stevens Davis Miller & Mosher Suite 850 1615 L Street NW Washington, DC 20036			LEVITAN, DMITRY	
			ART UNIT	PAPER NUMBER
			2662	

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/806,412	SUDO, HIROAKI	
	<b>Examiner</b>	<b>Art Unit</b>	
	Dmitry Levitan	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-5 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-5 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 03 March 2001 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of: \_\_\_\_\_  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>03/03/2001</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

***Drawings***

1. The drawings are objected to because branches 1 and 2, disclosed on pages 2 and 16 are not shown on the appropriate drawings. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

3. The disclosure is objected to because of the following informalities: typographical errors on page 5, section 34 instead of section 35; on page 7, section 25 instead of section 35; on page 20 TIFFT instead of IFFT.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cimini (US 6,005,876) in view of Ohashi (US 5,799,245).

Cimini substantially teaches the limitations of claims 1 and 3-5.

A base station apparatus and method, having an OFDM communication apparatus (OFDM system on Fig. 1A and 3:9-22) comprising:

Subcarrier selecting means for selecting subcarriers to be transmitted from a branch (distributor 306 on Fig. 3, selecting tones/carriers for four transmit paths 4:1-30); and  
Transmitting means for arranging signals to be transmitted from a branch among said transmitting signals to said selected subcarriers to perform IFFT processing (transmitting means

Art Unit: 2662

antenna 309, RF section 308 and IFFT processors 307 in each of four branches on Fig. 3 and 4:15-22).

In addition, Cimini teaches varying subcarriers/ tone assignments among the transmit antennas/paths 5:9-26.

Cimini does not teach selecting subcarriers in accordance with the number of retransmissions.

Ohashi teaches selecting subcarriers in accordance with the number of retransmissions (re-transmission counting on Fig. 3 and 4, 12:32-52).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to select subcarriers in accordance with the number of retransmissions of Ohashi in the system of Cimini to improve the system operation in fading environment by providing variable paths for the transmit signals.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cimini and Ohashi.

Cimini and Ohashi teach all the limitations of the parent claim 1 and varying subcarriers for the transmit signals (see rejection of claims 1 and 3-5 above).

Cimini and Ohashi do not teach selecting unique subcarriers/varying paths for each frame.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to select unique subcarriers for each frame to the system of Cimini and Ohashi to improve the system operation in fading environment by varying paths for the transmit signals for each frame.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Smith            US006006075A        Method and apparatus for transmitting signals using space diversity.

Kokudo          US005970061A        Transmission space diversity controlling method.

Sarraf           US006747948B1        Interleaver scheme in an OFDM system.

Bantz            US005507035A        Diversity transmission strategy.

Greenstein        US006131016A        Method and apparatus for enhancing communication.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dmitry Levitan whose telephone number is (571) 272-3093. The examiner can normally be reached on 8:30 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit: 2662

DL

Dmitry Levitan  
Patent Examiner.  
10/25/04.



HASSAN KIZOU  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600